2 Product Specifications

2-1 Specifications

Item	Description	
	ES15A*	ES17A*
LCD Panel	TFT-LCD panel, RGB vertical stripe, normaly white, 15-Inch viewable, 0.297 mm pixel pitch	TFT-LCD panel, RGB vertical stripe, normaly white, 17-Inch viewable, 0.264 mm pixel pitch
Scanning Frequency	Horizontal : 30 kHz ~ 69 kHz (Automatic) Vertical : 56 Hz ~ 85 Hz (Automatic)	30 kHz ~ 81 kHz (Automatic) 56 Hz ~ 76 Hz (Automatic)
Display Colors	16.7 Million colors	
Maximum Resolution	Horizontal : 1024 Pixels Vertical : 768 Pixels	1280 Pixels 1024 Pixels
Input Video Signal	Analog 0.7 Vp-p ± 5% positive at 75 Ω, internally terminated	
Input Sync Signal	Type : Seperate H/V Sync-on-Green, automatic synchronization without external switch of sync type Level : TTL level	
Maximum Pixel Clock rate	95 MHz	135 MHz
Active Display Horizontal/Vertical	304.1 mm / 228.1 mm	338.1 mm / 270.1 mm
AC power voltage & Frequency	AC 90 ~ 264 Volts, 60 / 50 Hz ± 3 Hz	
Power Consumption	40 W (Max)	52 W (Max)
Dimensions Unit (W x D x H) Carton (W x D x H)	 18.6 x 15.6 x 8.0 Inches (474 x 397 x 204 mm) 22.6 x 18.3 x 10.2 Inches (577 x 465 x 259 mm)	 20.8 x 17.6 x 8.0 Inches (529.2 x 447.7 x 204.4 mm) 24.0 x 20.0 x 10.1 Inches (611 x 511 x 258 mm)
Weight	3.95 Kg (8.7 lbs)	4.95 Kg (10.9 lbs)
Environmental Considerations	Operating Temperature : 50 °F ~ 104 °F (10 °C ~ 40 °C) Humidity : 10 % ~ 80 % Storage Temperature : -13 °F ~ 113 °F (-25 °C ~ 45 °C) Humidity : 5 % ~ 95 %	
TV System	Tunning	Frequency Synthesize
	Color	PAL, SECAM
	Sound	NICAM, A2 STEREO
Antena Input	75Ω, Coaxial Cable	
Sound Characteristic	– MAX Internal speaker Out : Right => 3W Left => 3W	Right => 5W Left => 5W
	– BASS Control Range : -12dB~ + 12dB – TREBLE Control Range : -12dB~ + 12dB – Headphone Out: RF => 5mW max (400m Vrms) A/V => 10mW max (580 Vrms), Max Input sound: -9dBm – Output Frequency (TBD) : RF => 80 Hz ~ 15 kHz A/V => 80 Hz ~ 20 kHz	

2-2 Pin Assignments

Sync Type / Pin No.	Separate H/V	Composite H/V	Sync-on-green
1	Red	Red	Red
2	Green	Green	Green + H/V Sync.
3	Blue	Blue	Blue
4	GND	GND	GND
5	GND (DDC Return)	GND (DDC Return)	GND (DDC Return)
6	GND-Red	GND-Red	GND-Red
7	GND-Green	GND-Green	GND-Green
8	GND-Blue	GND-Blue	GND-Blue
9	No Connection	No Connection	Not Used
10	GND-Sync./Self Test	GND-Sync./Self Test	GND-Sync./Self Test
11	GND	GND	GND
12	DDC Data	DDC Data	DDC Data
13	Horizontal sync.	H/V-Sync.	Not Used
14	Vertical sync.	Not Used	Not Used
15	DDC Clock	DDC Clock	DDC Clock

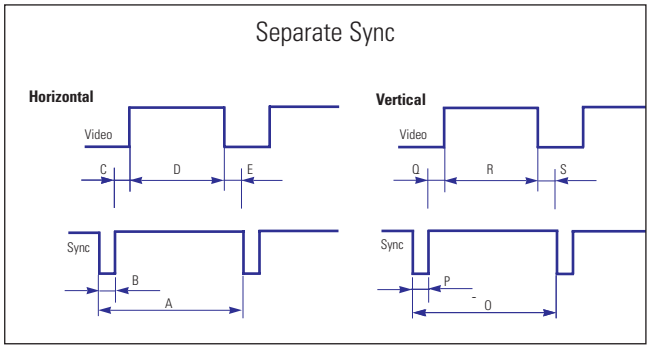
Sync Type / Pin No.	DTV 15pin connector
1	Red , Y
2	Green , Pb
3	Blue , Pr
4	GND
5	GND
6	GND-Red
7	GND-Green
8	GND-Blue
9	GND
10	No Connection
11	GND
12	No Connection
13	Horizontal sync.
14	Vertical sync.
15	No Connection

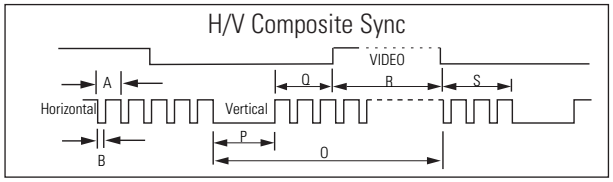
2-3 Timing Chart

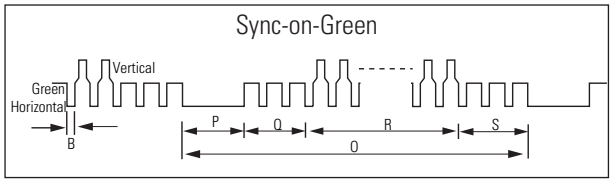
This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 2-1. Timing Chart

Mode / Timing	IBM		VESA								
	VGA2/ 70 Hz 720 x 400	VGA3/ 60 Hz 640 x 480	640/75 Hz 640 x 480	640/85 Hz 640 x 480	800/75 Hz 800 x 600	800/85 Hz 800 x 600	1024/60Hz 1024 x 768	1024/75Hz 1024 x 768	1024/85Hz 1024x768	1280/76Hz 1280x1024 (17" Only)	1280/75Hz 1280x1024 (17" Only)
fH (kHz)	31.469	31.469	37.500	43.269	46.875	53.674	48.363	60.023	68.677	81.129	79.976
A µsec	31.777	31.778	26.667	23.111	21.333	18.631	20.677	16.660	14.561	16.640	12.504
B µsec	3.813	3.813	2.032	1.556	1.616	1.138	2.092	1.219	1.016	6.400	1.067
C µsec	1.589	1.589	3.810	2.222	3.232	2.702	2.462	2.235	2.201	2.880	1.837
D µsec	26.058	26.058	20.317	17.778	16.162	14.222	15.754	13.003	10.836		9.481
E µsec	0.318	0.318	0.508	1.556	0.323	0.569	0.369	0.203	0.508	3.200	0.119
fV (Hz)	70.087	59.940	75.000	85.008	75.000	85.061	60.004	75.029	84.997	76.106	75.025
O msec	14.268	16.683	13.333	11.764	13.333	11.756	16.666	13.328	11.765	10.660	13.329
P msec	0.064	0.064	0.080	0.671	0.064	0.056	0.124	0.050	0.044	0.080	0.038
Q msec	0.858	0.794	0.427	0.578	0.448	0.503	0.600	0.466	0.524	3.200	0.475
R msec	13.155	15.761	12.800	11.093	12.800	11.179	15.880	12.795	11.183		12.804
S msec	0.191	0.064	0.027	0.023	0.021	0.019	0.062	0.017	0.015	0.020	0.013
Clock Freq. (MHz)	28.322	25.175	31.500	49.500	49.500	56.250	75.000	78.750	94.500	135.000	135.000
Polarity H.Sync	Negative	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Negative	Positive
V.Sync	Positive	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Negative	Positive
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Com.	Separate







A : Line time total	B : Horizontal sync width	O : Frame time total	P : Vertical sync width
C : Back porch	D : Active time	Q : Back porch	R : Active time
E : Front porch		S : Front porch	

Memo